

REMARKS

Applicants request that independent claims 1, 7, 12 and 16 of the subject application be amended as provided herein so that the claims herein correspond to the counterpart PCT International Application No. PCT/US01/24277, filed March 8, 2001, which has been recently amended under Article 19.

In the International Search Report rendered in the counterpart PCT application (a copy of which was filed in the subject application under a separate Information Disclosure Statement) a "Y" designation was given the independent claims on the basis of PCT publication WO99/39809. That PCT application was discussed at page 6, lines 17-31 and page 7, lines 1-2, of the subject application. It was also distinguished at page 32, lines 19-30. After reviewing the claims of the subject application (at least the apparatus claims), it became clear that, inadvertently, the apparatus claims did not preclude the use of an oxidation catalyst downstream of the catalyzed soot filter. Accordingly, the claims have been amended, including the method claims, to bring out this limitation.

It is also noted that the PCT Search Report also issued a "Y" obviousness rejection on the basis of assignees' PCT publication WO00/29726. However, this disclosure does not set forth an SCR (selective catalyst reduction) system and is not believed relevant in any respect to the invention of the subject application because an emission system calling for the addition of a reductant behaves entirely differently than a system wherein an external reductant is not provided.

While the subject application was filed on March 23, 2001, an Office Action has not been received. It is requested that this Preliminary Amendment be entered into the application because the prosecution of the application will be advanced.

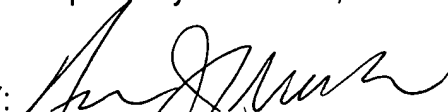
The undersigned was authorized by Richard A. Negin, Reg. No. 28,649, an attorney of record in the subject application, to prepare and file this Preliminary Amendment on behalf of the assignee. Correspondence should continue to be

directed to Stephen I. Miller, Esq., Chief Patent Counsel, Engelhard Corporation,
101 Wood Avenue, P.O. Box 770, Iselin, NJ, 08830-0770.

Telephone:(216) 696-8815

Respectfully submitted,

BY:



FRANK J. NAWALANIC
Reg. No. 26,491

VERSION WITH MARKINGS TO SHOW CHANGES MADE
in the claims by this Amendment:

1) (Amended) An exhaust aftertreatment system for use in a diesel engine comprising:

a) a catalyzed soot filter downstream of the diesel engine and through which the exhaust gases from the diesel engine pass, said catalyzed soot filter in direct fluid communication with the position at which said diesel engine discharges said exhaust gas without any intervening catalyst therebetween;

b) an SCR catalyst downstream of and in direct fluid communication with the catalyzed soot filter and through which the exhaust gases from the diesel engine pass after passing through the catalyzed soot filter; and,

c) a metering valve for metering a reducing agent tending to reduce NOx at elevated temperature in the exhaust gases when passing through the SCR catalyst.

7) (Amended) An emission purification system for treating exhaust gases produced by a vehicle powered by a diesel engine comprising:

a) a catalyzed soot filter adjacent and in direct fluid communication with said engine without intervening catalysts therebetween, said soot filter of the wall-flow type having gas permeable walls formed into a plurality of axially extending channels, each channel having one end plugged with any pair of adjacent channels plugged at opposite ends thereof, said exhaust gases passing through said channel walls as said gases travel from an entrance to an exit of said soot filter;

b) a valve downstream of said soot filter's exit in fluid communication with a nitrogen reductant and with said exhaust gases after exiting said soot filter;

c) means for regulating said valve to control the quantity of said nitrogen reductant admitted to said exhaust gases; and,

d) a nitrogen reductant SCR catalyst downstream of said valve and
15 said soot filter in direct fluid communication with said soot filter, said SCR catalyst
having a set temperature at which said SCR catalyst becomes catalytically active
for a set space velocity if said exhaust gases pass through said SCR catalyst with
a set quantity of reductant immediately upon exit from said engine that is higher than
the temperature at which said SCR catalyst becomes catalytically active when said
20 exhaust gases pass through said SCR catalyst at said set space velocity with said
set quantity of reductant after passing through said soot filter.

12) (Amended) A method for treating exhaust gas emissions produced
by a vehicle powered by a diesel engine including light duty diesel engines, said
exhaust gases including nitrogen oxides, NO_x, with nitric oxides (NO) comprising
at least 50% of the composition of said NO_x, and soot containing a VOF, said
5 method comprising the steps of:

a) providing a catalyzed soot filter downstream of said engine, said
soot filter comprising gas porous walls catalyzed on both sides thereof formed into
axially extending channels, each channel having a plug at one end and open at its
opposite end with any pair of adjacent channels having plugs at opposite channel
10 ends;

b) flowing said exhaust gas produced by said engine without any
catalyzing device altering the composition of said exhaust gas into channels having
open ends confronting said engine which define open end channels, oxidizing said
NO through contact with said catalyzed wall surfaces of said open ended channels
15 to produce NO₂ and reacting said NO₂ with said VOF in said open ended channels
to reduce said NO₂ to said NO;

c) flowing said NO through said walls into channels having plug
ends confronting said engine which define closed end channels, and oxidizing said
NO by contact with said catalyzed wall surfaces on said closed end channels to
20 produce NO₂, said exhaust gases having a higher concentration of NO₂ exiting said
soot filter than entering said soot filter;

d) injecting a set amount of a nitrogen reductant into said exhaust stream downstream of said soot filter;

e) providing a SCR catalyst on a monolith; and,

25 f) passing said gases into which said reductant has been injected over and in contact with said SCR catalyst whereby said NOx is reduced.

16) (Amended) A method for reducing NOx emissions produced by vehicles powered by light duty diesel and similar engines having exhaust gas operating temperatures as low as about 200EC comprising the steps of:

5 a) increasing the NO₂ concentration present in the NOx gases initially generated by said engine by immediately passing the NOx exhaust gases thorough a catalyst soot filter and without passing said gases through any catalyzing device prior to entering said catalyst soot filter;

b) metering an ammonia reductant into said exhaust gases after said exhaust gases have exited said catalyzed soot filter; and,

10 c) directly passing said exhaust gases with said reductant through an SCR catalyst for reducing said NOx.